Space Weather Forecast

Issued on Wednesday, 03 November 2021 at 00:30 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of further M-class flares. G1/Minor G2/Moderate geomagnetic storms likely, and slight chance of G3/Strong geomagnetic storms late day 1 into day 2.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: There are three sunspot regions on the visible disc with moderate solar activity observed over the last 24 hours. The moderate activity was a result of long duration flare peaking around 02/0300UT from the sunpot in centre disk and gave an Earth directed halo coronal mass ejection. The spot rotating off the southwest limb also produced several flares and coronal mass ejections, although final computation is necessary, none of these are currently thought to be to be earth directed. The sunspot in the northeast quadrant appears stable with very little recent activity.

Solar Wind / Geomagnetic Activity: The solar wind parameters indicated a continued connection to coronal hole 16. Solar wind speeds increased through the period, and are currently around 600km/s. Total interplanetary magnetic field started at moderate levels, but soon trended back to weak levels. The important north-south component was weak. Geomagnetic activity was Unsettled initially with a G1/Minor Storm interval, then became quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained slightly elevated but below minor storm levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to remain mainly low through the next four days, but with a continuing chance of Moderate class flares from the spot currently transiting to the northwest quadrant.

Solar Wind / Geomagnetic Activity: The high speed stream from coronal hole 16 is expected to continue to influence earth on day 1 (3rd). A continued slight chance of glancing blows from small coronal mass ejections on days 1 and 2 (3rd and 4th) remains possible, but the main arrival of the halo coronal mass ejection, associated with the Moderate flare on 2nd, is expected to be either late on day 1 or early day 2, with a current estimated arrival of 0001 UTC on the 4th. Quiet to Active geomagnetic conditions are forecast to predominate through the next four days, though the arrival of this halo CME brings a likelihood of G1/Minor G2/Moderate storm intervals at or after its arrival with a slight chance of G3/Strong storm intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to be below storm level with a general decrease towards background levels.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2021. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	70	70	30	10
Strong	G3	No	20	20	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	30	30	30	30
Very Active	R3 to R5 X	No	3	3	3	3

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2021. All Rights Reserved.